

REMARKS/ARGUMENTS

Claims 16-31 are pending in this application. By this Amendment, Applicant amends the specification, the drawings, and Claims 16 and 18.

Claims 20, 21, 23, and 26-28 have been withdrawn as being directed to non-elected species. Non-elected Claims 20, 21, 23, and 26-28 are dependent upon generic Claim 18. Accordingly, Applicant respectfully requests that the Examiner rejoin and allow Claims 20, 21, 23, and 26-28 when generic Claim 18 is allowed.

Claims 16-18, 24, 30, and 31 were rejected under 35 U.S.C. § 102(e) as being anticipated by Kondo et al. (U.S. 6,667,443). Claims 19, 22, and 25 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Kondo et al. Claim 29 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Kondo et al., and further in view of Fukuta (U.S. 5,456,778). Applicant respectfully traverses the rejections of Claims 16-19, 22, 24, 25, and 29-31.

Claim 16 has been amended to recite:

An internal conductor connection structure comprising:
an insulator substrate including a plurality of insulating layers;
line conductors disposed in the insulator substrate; and
at least two via conductors adjacent each other at a predetermined interval in the insulator substrate, at least one of the at least two via conductors including a continuous via conductor arranged to extend in a direction away from the other via conductor; wherein
the at least one of the at least two via conductors is connected to one of the line conductors through the continuous via conductor;
the continuous via conductor has a dimension in a direction in which the line conductors extend that is greater than a dimension of the at least two via conductors in the direction in which the line conductors extend;
the continuous via conductor is disposed in one of the plurality of insulating layers;
one of the at least two via conductors is disposed in another one of the plurality of insulating layers that is different from the one of the plurality of insulating layers in which the continuous via conductor is disposed; and
one end portion of the continuous via conductor is connected

to the one of the at least two via conductors, and an opposite end portion, but not the one end portion, of the continuous via conductor is connected to the one of the line conductors. (emphasis added)

Applicant's Claim 18 recites features that are similar to the features recited in Applicant's Claim 16, including the above-emphasized feature.

With the unique combination and arrangement of features recited in Applicant's Claims 16 and 18, including the features of "the continuous via conductor is disposed in one of the plurality of insulating layers," "one of the at least two via conductors is disposed in another one of the plurality of insulating layers that is different from the one of the plurality of insulating layers in which the continuous via conductor is disposed," and "one end portion of the continuous via conductor is connected to the one of the at least two via conductors, and an opposite end portion, but not the one end portion, of the continuous via conductor is connected to the one of the line conductors," Applicant has been able to provide an internal conductor connection structure capable of increasing a density of internal wiring in accordance with, for example, a reduction of the pitch between external terminals of an integrated circuit, as well as a multilayer substrate (see, for example, paragraph [0007] of the Substitute Specification).

The Examiner alleged that Kondo et al. teaches all of the features recited in Applicant's Claims 16 and 18.

Applicant's Claim 16 has been amended to recite the features of "the continuous via conductor is disposed in one of the plurality of insulating layers," "one of the at least two via conductors is disposed in another one of the plurality of insulating layers that is different from the one of the plurality of insulating layers in which the continuous via conductor is disposed," and "one end portion of the continuous via conductor is connected to the one of the at least two via conductors, and an opposite end portion, but not the one end portion, of the continuous via conductor is connected to the one of the line conductors." Applicant's Claim 18 has been similarly amended. Support for these features is found, for example, in paragraphs [0037]-[0039] and Figs. 1A and 3A

of Applicant's originally filed application.

In contrast to Applicant's Claims 16 and 18, as shown in Figs. 4A to 6C of Kondo et al., each of the elongated via conductors 24a, 24b, which the Examiner alleged correspond to the continuous via conductor recited in Applicant's Claims 16 and 18, is disposed in a land portion 22b of the line conductor 22, such that the land portion 22b completely surrounds the elongated via conductors 24a, 24b. In addition, as shown in Figs. 3A to 3E of Kondo et al., each of the via conductors (via holes 24 that are filled with the conductor paste) are connected to a central portion of a respective one of the elongated via conductors 24a, 24b. Thus, at best, Kondo et al. teaches that a central portion of the continuous via conductor 24a or 24b is connected to one of the via conductor 24, and two opposed end portions of the continuous via conductor 24a or 24b are connected the line conductor 22. Kondo et al. neither teaches nor suggests that the elongated via conductor 24a, 24b could or should have been arranged such that one end portion of the continuous via conductor 24a or 24b would have been connected to one of the via conductor 24, and an opposite end portion, but not the one end portion, of the continuous via conductor 24a or 24b could have been connected one of the line conductors 22.

In fact, col. 13, lines 1-6 of Kondo et al. disclose, "preferably, length of the via holes 24a and 24b is slightly short in comparison with the diameter of the land portions 22b. This dimension is made for the purpose of surely forming bottom equipped via holes in consideration of an alignment accuracy of the via holes 24a and 24b." Thus, the land portions 22b of Kondo et al. through which the via holes 24a and 24b are provided must be provided to surely form bottom equipped via holes, and cannot be modified to be connected to only one end of the elongated via conductor 24a, 24b.

Thus, Kondo et al. certainly fails to teach or suggest the feature of "one end portion of the continuous via conductor is connected to the one of the at least two via conductors, and an opposite end portion, but not the one end portion, of the continuous via conductor is connected to the one of the line conductors" (emphasis

added) as recited in Applicant's Claims 16, and similarly in Applicant's Claim 18.

Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejection of Claims 16 and 18 under 35 U.S.C. § 102(e) as being anticipated by Kondo et al.

The Examiner relied upon Fukuta et al. to allegedly cure deficiencies of Kondo et al. However, Fukuta et al. fails to teach or suggest the feature of "one end portion of the continuous via conductor is connected to the one of the at least two via conductors, and an opposite end portion, but not the one end portion, of the continuous via conductor is connected to the one of the line conductors" as recited in Applicant's Claim 16, and similarly in Applicant's Claim 18. Thus, Applicant respectfully submits that Fukuta et al. fails to cure the deficiencies of Arima et al. described above.

Accordingly, Applicant respectfully submits that Kondo et al. and Fukuta et al., applied alone or in combination, fail to teach or suggest the unique combination and arrangement of features recited in Applicant's Claims 16 and 18.

In view of the foregoing amendments and remarks, Applicant respectfully submits that Claims 16 and 18 are allowable. Claims 17, 19, 22, 24, 25, and 29-31 depend upon Claims 16 and 18, and are therefore allowable for at least the reasons that Claim 16 and 18 are allowable. In addition, Applicant respectfully requests that non-elected Claims 20, 21, 23, and 26-28 be rejoined and allowed with generic Claim 18.

In view of the foregoing amendments and remarks, Applicant respectfully submits that this application is in condition for allowance. Favorable consideration and prompt allowance are solicited.

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The Commissioner is authorized to charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1353.

Respectfully submitted,

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